

CLAIMS

What is claimed is:

1        1. A method of replacing a throw-away spin-on oil  
2        filter cartridge on an internal combustion engine, the filter  
3        cartridge having an internally threaded opening for threading  
4        onto a filter mount on an engine, at least an opening  
5        adjacent the internally threaded opening, and a face seal for  
6        sealing against the filter mount, comprising:

7            providing an enclosure having a first end with a first  
8        opening to the interior of the enclosure that is internally  
9        threaded to simulate the internally threaded region of the  
10      prior art throw-away spin-on oil filter cartridge, and a face  
11      seal simulating the face seal of the prior art throw-away  
12      spin-on oil filter cartridge, the enclosure having at least  
13      one second opening to its interior within the bounds of the  
14      face seal and being disassemblable for access to its  
15      interior;

16            providing a tubular woven metal mesh filter element;  
17            placing the metal filter element within the enclosure  
18        and assembling the enclosure so that the metal filter element  
19        is imposed in the oil flow path between the first and second  
20        openings;

21       replacing a prior art throw-away spin-on oil filter  
22   cartridge with the assembled enclosure with metal filter  
23   element therein;

24       repeatedly disassembling the enclosure, removing and  
25   cleaning the metal filter element and reassembling the  
26   enclosure with the metal filter element therein.

1       2.   The method of claim 1 wherein the enclosure is  
2   removed from the engine for disassembly and cleaning of the  
3   metal filter element, and then reassembled and remounted on  
4   the engine.

1       3.   The method of claim 1 wherein the enclosure is  
2   provided with a can-like body and a cap that removeably seals  
3   with respect to the can-like body, the cap having the first  
4   and second openings and the face seal therein.

1       4.   The method of claim 3 wherein the cap is unscrewed  
2   from the can-like body for disassembly and screwed back on  
3   the can-like body for reassembly.

1       5.   The method of claim 1 wherein the metal filter  
2   element is cleaned using soap and water.

1       6.   The method of claim 1 further including providing  
2   within the enclosure a bypass valve responsive to a  
3   predetermined pressure difference between the outer periphery

4 and inner periphery of the filter element to provide an oil  
5 flow path between the outer periphery and inner periphery of  
6 the filter element when the pressure difference rises above  
7 the predetermined pressure difference.

1       7. The method of claim 1 further comprised of  
2 providing an internally and externally threaded insert  
3 fitting within the first opening, whereby the method may be  
4 practiced on any of a plurality of engines having different  
5 oil filter mounts using the same enclosure with the metal  
6 filter element therein.

1       8. A reusable filter for replacing a throw-away spin-  
2 on oil filter cartridge for an internal combustion engine of  
3 the type having a filter cartridge having an internally  
4 threaded first opening at one end thereof for threading onto  
5 a filter mount on an engine, at least one second opening  
6 adjacent the first opening, and a face seal circumscribing  
7 the first and second openings for sealing against a filter  
8 mount, and a filter element therein, comprising:

9       a can-like body;  
10       a tubular woven metal mesh filter element;  
11       a cap having the first and second openings therein  
12       simulating the first and second openings in the throw-away  
13       spin-on oil filter cartridge the reusable filter is intended  
14       to replace; and,

15       a face seal on the cap simulating the face seal of the  
16  throw-away spin-on oil filter cartridge the reusable filter  
17  is intended to replace;

18       the cap being removeably assembleable to the can-like  
19  body;

20       the tubular woven metal mesh filter element fitting  
21  within the enclosure defined by the can-like body and the cap  
22  and being imposed in the oil flow path between the first and  
23  second openings.

1       9.   The reusable filter of claim 8 wherein the woven  
2  metal mesh filter element is a stainless steel tubular woven  
3  metal filter element.

1       10.   The reusable filter of claim 8 wherein the woven  
2  metal mesh filter element is pleated.

1       11.   The reusable filter of claim 8 wherein the tubular  
2  woven metal mesh filter element has a closure member  
3  permanently attached to a first end thereof, the tubular  
4  woven metal mesh filter element being assembleable in the  
5  reusable filter with a second end thereof facing the cap.

1       12.   The reusable filter of claim 11 further comprised  
2  of an O-ring sealing the second end of the tubular woven

3 metal mesh filter element against an inner surface of the  
4 cap.

1 13. The reusable filter of claim 8 wherein the cap and  
2 can-like body screw together.

1 14. The reusable filter of claim 13 further comprising  
2 an O-ring seal between the cap and the can-like body.

1 15. The reusable filter of claim 8 wherein the face  
2 seal on the cap is an O-ring.

1 16. The reusable filter of claim 8 further comprised of  
2 an O-ring sealing the second end of the tubular woven metal  
3 mesh filter element against an inner surface of the cap, and  
4 another O-ring sealing the first end of the tubular woven  
5 metal mesh filter element against a bottom surface of the  
6 can-like body.

1 17. The reusable filter of claim 8 further including  
2 within the enclosure a bypass valve responsive to a  
3 predetermined pressure difference between the outer periphery  
4 and inner periphery of the filter element to provide an oil  
5 flow path between the outer periphery and inner periphery of  
6 the filter element when the pressure difference rises above  
7 the predetermined pressure difference.

1       18. The reusable filter of claim 8 further comprised of  
2       an internally and externally threaded insert fitting within  
3       the first opening, whereby a specific reusable filter may be  
4       used on any of a plurality of engines having different oil  
5       filter mounts.

1       19. A reusable filter for replacing a throw-away spin-  
2       on oil filter cartridge for an internal combustion engine of  
3       the type having a filter cartridge having an internally  
4       threaded first opening at one end thereof for threading onto  
5       a filter mount on an engine, at least one second opening  
6       adjacent the first opening, and a face seal circumscribing  
7       the first and second openings for sealing against a filter  
8       mount, and a filter element therein comprising:

9       a can-like body;  
10       a tubular woven, pleated metal mesh filter element;  
11       a bypass valve within the can-like body responsive to a  
12       predetermined pressure difference between the outer periphery  
13       and inner periphery of the filter element to provide an oil  
14       flow path between the outer periphery and inner periphery of  
15       the filter element when the pressure difference rises above  
16       the predetermined pressure difference;  
17       a cap having the first and second openings therein  
18       simulating the first and second openings in the throw-away

19 spin-on oil filter cartridge the reusable filter is intended  
20 to replace; and,

21 a face seal on the cap simulating the face seal of the  
22 throw-away spin-on oil filter cartridge the reusable filter  
23 is intended to replace;

24 the cap being removeably assembleable to the can-like  
25 body by cooperatively disposed screw threads on the cap and  
26 can-like body;

27 the tubular woven, pleated metal mesh filter element  
28 fitting within the enclosure defined by the can-like body and  
29 the cap and being imposed in the oil flow path between the  
30 first and second openings.

1 20. The reusable filter of claim 19 further comprised  
2 of an internally and externally threaded insert fitting  
3 within the first opening, whereby a specific reusable filter  
4 may be used on any of a plurality of engines having different  
5 oil filter mounts.

1 21. The reusable filter of claim 19 wherein the woven  
2 metal mesh filter element is a stainless steel tubular woven  
3 metal filter element.

1 22. The reusable filter of claim 19 wherein the tubular  
2 woven pleated metal mesh filter element has a closure member  
3 permanently attached to a first end thereof, the tubular

4 woven pleated metal mesh filter element being assembleable in  
5 the reusable filter with a second end thereof facing the cap.

1 23. The reusable filter of claim 22 further comprised  
2 of an O-ring sealing the second end of the tubular woven  
3 metal mesh filter element against an inner surface of the  
4 cap.

1 24. The reusable filter of claim 19 further comprising  
2 an O-ring seal between the cap and the can-like body.

1 25. The reusable filter of claim 24 wherein the face  
2 seal on the cap is an O-ring.

1 26. The reusable filter of claim 19 further comprised  
2 of an O-ring sealing the second end of the tubular woven  
3 metal mesh filter element against an inner surface of the  
4 cap, and another O-ring sealing the first end of the tubular  
5 woven metal mesh filter element against a bottom surface of  
6 the can-like body.